

--In general terms, the present invention provides a system and method for reducing the number of z-buffer accesses during the generation and display of a three-dimensional graphical object. This is accomplished by identifying minimum and maximum depth values (z-values) of a group of pixels making up the object. Z-comparisons are then performed on the minimum and/or maximum z-values rather than on all the z-values in the group. This allows savings in computational cycles.

A1 Memory bandwidth is also saved because no z-read requests need be submitted to the display controller 16 (FIG. 1). By making z-comparisons on the minimum and/or maximum z-values only, generalization of the z-values of the remaining pixels in the group are often possible. If such generalization cannot be made, pixel-by-pixel z-comparisons of all the pixels in the group are then performed.--

IN THE CLAIMS

Claims 1-33 are pending in the present application. Please amend claims 11, 12 and 23. Please add new claim 34. The following is a scannable version of claims 1-34 as amended:

- 1 1. In a computer graphics display system comprising a display monitor, a method
- 2 of detecting hidden surfaces of a polygon in a display block, the polygon having depth
- 3 values corresponding to a minimum depth value and a maximum depth value, the
- 4 method comprising:
- 5 partitioning a screen of the display monitor into a plurality of display blocks having
- 6 one or more layers of pixels;